**That which is claimed is:**

1. A method of controlling access to a shared communication medium, the method comprising:

dividing a revolving priority queue (RPQ) into at least a low priority tier having a plurality of request queues and a high priority tier having a plurality of request queues; and

directing a request for access to the shared communication medium into an initial queue in the high priority tier if throughput for an end user associated with the request fails to meet a guaranteed throughput.

2. The method according to Claim 1, further comprising directing the request for access to the shared communication medium into an initial queue in the low priority tier if throughput for an end user associated with the requests meets or exceeds the guaranteed throughput.

3. The method according to Claim 2, further comprising:

reading requests for access from the RPQ, where requests are read from the high priority tier before requests are read from the low priority tier of queues; and

allocating bandwidth based on the order in which requests are read from the RPQ.

4. The method according to Claim 3, wherein reading requests comprises:

reading requests from secondary queues of the high priority tier; then

reading requests from secondary queues of the low priority tier; then

reading requests from initial queues of the high priority tier; and then

reading request from initial queues of the low priority tier.

5. The method according to Claim 1, wherein directing a request into an initial queue in the high priority tier if throughput for an end user associated with the request fails to meet a guaranteed throughput, comprises:

receiving a request for access to the shared communication medium associated with a connection having a guaranteed throughput;

determining if the connection associated with the request has met its guaranteed throughput;

placing the request in the high priority tier of the RPQ if the connection associated with the request has not met its guaranteed throughput; and

placing the request in the low priority tier of the RPQ if the connection associated with the request has met its guaranteed throughput.

6. The method according to Claim 2, further comprising promoting requests in the low priority tier to a request queue in the high priority tier if, at a promotion time, the requests have not been read from a low priority tier request queue.

7. The method according to Claim 6, wherein a request associated with a connection which meets or exceeds its guaranteed throughput may be placed in a queue in the high priority tier only by promotion from a request queue in the low priority tier.

8. The method according to Claim 5, further comprising the step of placing requests which do not have an associated guaranteed throughput into a request queue in the low priority tier.

9. The method according to Claim 2, wherein the shared communication medium is a cable television system and wherein requests for access comprise requests for access to an upstream channel of the cable television system.

10. The method according to Claim 9, wherein the cable television system is a Data Over Cable (DOCSIS) compatible system.

11. The method according to Claim 10, wherein allocating bandwidth comprises:

generating a map allocating upstream bandwidth based on the read requests; and

broadcasting the map to cable modems on a downstream channel.

12. A method of allocating bandwidth for a shared communication medium, the method comprising:

dividing a revolving priority queue (RPQ) into at least a low priority tier having a plurality of queues and a high priority tier having a plurality of queues;

queuing information indicating bandwidth requirements for a connection in the high priority tier if a throughput guarantee associated with the connection is not met; and

allocating bandwidth based on an order in which the information indicating bandwidth requirements for a connection is read from the RPQ.

13. The method according to Claim 12, wherein the information indicating bandwidth requirements comprises requests for bandwidth.

14. The method according to Claim 12, wherein the information indicating bandwidth requirements comprises packets and wherein the step of allocating bandwidth comprises reading packets from the RPQ and placing the read packets in an output queue in transmission order.

15. A system for controlling access to a shared communication medium, comprising:

a bandwidth allocator circuit configured to received requests for bandwidth of the shared communication medium and to allocate bandwidth of the shared communication medium based on the received requests, the bandwidth allocator circuit further comprising:

a first tier of revolving priority queues configured to store requests for bandwidth;

a second tier of revolving priority queues configured to store requests for bandwidth; and

a request evaluator circuit configured to direct requests to one of the first tier of revolving priority queues or the second tier of revolving priority queues based on whether a throughput guarantee associated with a request is met.

16. The system according to Claim 15, wherein the first and second tier of revolving priority queues are operably coupled so that requests from the first tier of revolving priority queues are promoted to the second tier of revolving priority queues.

17. The system according to Claim 15, wherein the bandwidth allocator circuit is further configured to read requests from the second tier of revolving priority queues and allocate bandwidth based on the order in which requests are read from the second tier of revolving priority queues and then read requests from the first tier of revolving priority queues if bandwidth remains to be allocated for a bandwidth allocation period.

18. The system according to Claim 17, wherein the bandwidth allocator circuit is further configured to allocate bandwidth for requests in secondary queues of the second tier of revolving priority queues and then allocate bandwidth for requests in secondary queues of the first tier of revolving priority queues until all bandwidth for an allocation period has been allocated.

19. The system according to Claim 15, wherein N priority levels are associated with the requests and wherein the first tier of revolving priority queues comprise 2N queues and the second tier of revolving priority queues comprise 2N queues.

20. The system according to Claim 19, wherein the first tier of revolving priority queues comprises N initial queues and N secondary queues and the second tier of revolving priority queues comprises N initial queues and N secondary queues, wherein the initial queues and the secondary queues are configured to promote requests from an initial queue to a corresponding secondary queue at a promotion time and concatenate requests in a secondary queue with requests in a corresponding initial queue at a concatenation time.

21. The system according to Claim 20, wherein a secondary queue of the first tier of revolving priority queues is operably associated with an initial queue of the second tier of revolving priority queues such that requests in the secondary queue are concatenated with requests in the primary queue at the concatenation time.

22. The system according to Claim 15, wherein the shared communication medium is a cable television system and wherein requests for bandwidth comprise requests for access to an upstream channel of the cable television system.

23. The system according to Claim 22, wherein the cable television system is a Data Over Cable (DOCSIS) compatible system.

24. A system for controlling access to a shared communication medium, comprising:

means for dividing a revolving priority queue (RPQ) into at least a low priority tier having a plurality of request queues and a high priority tier having a plurality of request queues; and

means for directing a request for access to the shared communication medium into an initial queue in the high priority tier if throughput for an end user associated with the request fails to meet a guaranteed throughput.

25. A system for allocating bandwidth for a shared communication medium, comprising:

means for dividing a revolving priority queue (RPQ) into at least a low priority tier having a plurality of queues and a high priority tier having a plurality of queues;

means for queuing information indicating bandwidth requirements for a connection in the high priority tier if a throughput guarantee associated with the connection is not met; and

means for allocating bandwidth based on an order in which the information indicating bandwidth requirements for a connection is read from the RPQ.

26. A computer program product for controlling access to a shared communication medium, comprising:

a computer readable program medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code which divides a revolving priority queue (RPQ) into at least a low priority tier having a plurality of request queues and a high priority tier having a plurality of request queues; and

computer readable program code which directs a request for access to the shared communication medium into an initial queue in the high priority tier if throughput for an end user associated with the request fails to meet a guaranteed throughput.

27. A computer program product for allocating bandwidth for a shared communication medium, comprising:

a computer readable program medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code which divides a revolving priority queue (RPQ) into at least a low priority tier having a plurality of queues and a high priority tier having a plurality of queues;

computer readable program code which queues information indicating bandwidth requirements for a connection in the high priority tier if a throughput guarantee associated with the connection is not met; and

computer readable program code which allocates bandwidth based on an order in which the information indicating bandwidth requirements for a connection is read from the RPQ.